1. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$4x + 5 > 6x - 7$$

A. $(-\infty, a)$, where $a \in [-8, -1]$

B. $(-\infty, a)$, where $a \in [2, 7]$

C. (a, ∞), where $a \in [2, 7]$

D. (a, ∞), where $a \in [-10, -4]$

E. None of the above.

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2. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-7 - 3x \leq \frac{-22x - 8}{9} < 6 - 5x$$

A. $[a, b)$, where $a \in [6, 15]$ and $b \in [-6, -1.5]$

B. $(a, b]$, where $a \in [4.5, 13.5]$ and $b \in [-7.5, -2.25]$

C. $(-\infty, a) \cup [b, \infty)$, where $a \in [8.25, 13.5]$ and $b \in [-3.75, -1.5]$

D. $(-\infty, a] \cup (b, \infty)$, where $a \in [8.25, 13.5]$ and $b \in [-5.25, -2.25]$

E. None of the above.

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3. Using an interval or intervals, describe all the x-values within or including a distance of the given values.

No less than 9 units from the number 7.

A. $(-\infty, -2] \cup [16, \infty)$

B. $[-2, 16]$

C. $(-\infty, -2) \cup (16, \infty)$

D. $(-2, 16)$

E. None of the above

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4. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-7 - 3x \leq \frac{-21x + 9}{8} < -9 - 7x$$

A. $[a, b)$, where $a \in [-28.5, -16.5]$ and $b \in [-9, -0.75]$

B. $(-\infty, a) \cup [b, \infty)$, where $a \in [-23.25, -18.75]$ and $b \in [-7.5, -1.5]$

C. $(a, b]$, where $a \in [-23.25, -18]$ and $b \in [-8.25, 1.5]$

D. $(-\infty, a] \cup (b, \infty)$, where $a \in [-24, -18]$ and $b \in [-3.75, 0]$

E. None of the above.

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5. Using an interval or intervals, describe all the x-values within or including a distance of the given values.

No more than 3 units from the number 2.

A. $(-\infty, 1] \cup [5, \infty)$

B. $[1, 5]$

C. $(-\infty, 1) \cup (5, \infty)$

D. $(1, 5)$

E. None of the above

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6. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{10}{7} - \frac{7}{9}x \geq \frac{4}{4}x - \frac{10}{3}$$

A. $[a, \infty)$, where $a \in [0, 4.5]$

B. $[a, \infty)$, where $a \in [-3.75, 0]$

C. $(-\infty, a]$, where $a \in [0.75, 7.5]$

D. $(-\infty, a]$, where $a \in [-5.25, 0]$

E. None of the above.

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7. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-9 + 5x > 8x \text{ or } 5 + 3x < 4x$$

A. $(-\infty, a] \cup [b, \infty)$, where $a \in [-5.25, -3.15]$ and $b \in [1.05, 3.3]$

B. $(-\infty, a] \cup [b, \infty)$, where $a \in [-4.65, -2.4]$ and $b \in [4.58, 6.15]$

C. $(-\infty, a) \cup (b, \infty)$, where $a \in [-4.88, -2.62]$ and $b \in [3.52, 5.62]$

D. $(-\infty, a) \cup (b, \infty)$, where $a \in [-6.52, -3.82]$ and $b \in [2.62, 4.65]$

E. $(-\infty, \infty)$

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8. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{-6}{7} + \frac{5}{8}x \leq \frac{10}{3}x + \frac{4}{2}$$

A. $(-\infty, a]$, where $a \in [0, 1.5]$

B. $[a, \infty)$, where $a \in [0, 3]$

C. $(-\infty, a]$, where $a \in [-3, -0.75]$

D. $[a, \infty)$, where $a \in [-5.25, 0.75]$

E. None of the above.

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9. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-7x - 3 \geq -4x - 6$$

A. $(-\infty, a]$, where $a \in [-2.2, 0.8]$

B. $[a, \infty)$, where $a \in [0.66, 1.54]$

C. $(-\infty, a]$, where $a \in [-0.2, 3]$

D. $[a, \infty)$, where $a \in [-1.71, -0.18]$

E. None of the above.

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10. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$7 + 5x > 8x \text{ or } 7 + 3x < 4x$$

A. $(-\infty, a) \cup (b, \infty)$, where $a \in [-7.5, -6]$ and $b \in [-3, -1.5]$

B. $(-\infty, a] \cup [b, \infty)$, where $a \in [0.75, 4.5]$ and $b \in [6, 12]$

C. $(-\infty, a] \cup [b, \infty)$, where $a \in [-8.25, -4.5]$ and $b \in [-5.25, 0.75]$

D. $(-\infty, a) \cup (b, \infty)$, where $a \in [0, 5.25]$ and $b \in [3, 13.5]$

E. $(-\infty, \infty)$
